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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/595,333

01/26/2007

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032301.452

7657

25461 7590 11/19/2008
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EXAMINER

WITHERSPOON, SIKARL A

ART UNIT

PAPER NUMBER

1621

MAIL DATE

DELIVERY MODE

11/19/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--|------------------------------------|--|
| Office Action Summary | Application No. 10/595,333 | Applicant(s) YANG ET AL. | |
| | Examiner Sikarl A. Witherspoon | Art Unit 1621 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,8-13,16,18-28 and 30-41 is/are pending in the application.
- 4a) Of the above claim(s) 33-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,8-13,16,18-28,30-32 and 41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The examiner has considered the amendment filed August 25, 2008 and the arguments therein. The English translations of the three Chinese priority documents were effective in overcoming the rejection over CN 1528516. The other rejections made in the previous Office Action have been withdrawn. The examiner is making the following new rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 is dependent on claim 7, which was cancelled by amendment.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 8-13, 16, 18-28, 30-32, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al (Xiamen Daxue Xuebao, 2003) in view of Bucholz (GB 2016468).

The claims are drawn to a continuous process for making methylmercaptan by contacting a mixture of carbon oxides, sulfur or hydrogen sulfide, and hydrogen, in the presence of a catalyst comprising an active component of Mo-O-K based species, a promoter that is a mixture of oxides, sulfides, or sulfides and oxides of an element selected from iron, cobalt, nickel, lanthanum, cerium and manganese, and optionally, a carrier. Further limitations include the weight ratio of the catalytically active component, separation and recycle of unreacted components, adjusting the gas hourly space velocity to increase the selectivity to methylmercaptan, etc.

Wang et al teach a process for making methanethiol (i.e. methylmercaptan) from a hydrogen sulfide-containing syngas using a Mo-O-K based catalyst, supported on silica, in the presence of a promoter, such as an oxide of cobalt, iron, or nickel. The weight ratio of the catalyst to carrier is 5:20 (see abstract XP-002322025).

Bucholz et al teach a process for making methylmercaptans by reacting syngas and hydrogen sulfide (or elemental sulfur) in the presence of a catalyst comprising a supported metal oxide, including oxides of cobalt, iron, nickel, and molybdenum (abstract). The reference teaches typical reaction conditions, including various hourly space velocities, recovery of unconverted reactants from the desired products, etc.

The primary difference between the claimed invention and Wang et al is that Wang et al do not teach a *mixture* of oxides as catalyst promoter; however, both

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Bucholz and Wang et al teach the use of metal oxides to catalyze and/or promote the catalysis of the reaction of carbon oxides, hydrogen, and hydrogen sulfide, to make methylmercaptan. As such, it would have been obvious to a person having ordinary skill in the art to combine one or more such metal oxides that are individual known to catalyze and/or promote said reaction, with the expectation of forming a catalyst composition, or composition of catalytic promoters that would facilitate the reaction. *In re Kerkhoven*, 626 F.2d 846, 205 U.S.P.Q. 1069 (CCPA, 1980). The individual claim limitations not specifically addressed in the rejection, i.e., the method by which the active component of the catalyst is impregnated onto the support, modification of gas hourly space velocity to effect selectivity of methylmercaptan, employment of a specific number reaction zones in a fixed bed, etc. are not found to be of patentable import, absent a showing of criticality or unexpected results, because such process parameters would have been manipulated by a person having ordinary skill in the art a means of routine optimization of the process.

Specification

The disclosure is objected to because of the following informalities: the disclosure appears to be with a brief description of the drawing.

Appropriate correction is required.

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Applicant's arguments with respect to the instant claims have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikarl A. Witherspoon whose telephone number is 571-272-0649. The examiner can normally be reached on M-F 8:30-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Sullivan can be reached on 571-272-0779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sikarl A. Witherspoon/
Primary Examiner, Art Unit 1621

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